

Amendments to the Claims

This listing of claims will replace all prior versions, and listings of claims in the application.

Claims 1-30 (cancelled)

Claim 31 (new): A receiver for processing a received signal, the received signal including symbols and a frequency offset from baseband, the receiver generating a frequency offset estimate, the receiver comprising:

means for filtering the received signal to produce a filtered signal, whereby said filtering introduces inter-symbol interference (ISI) in the filtered signal;

means for converting the filtered signal to a baseband signal that is substantially free of the frequency offset and the ISI, responsive to the frequency offset estimate and a restorative signal that compensates for the ISI, wherein the means for converting the filtered signal to a baseband signal includes:

means for frequency-shifting the filtered signal toward baseband by an amount equal to the frequency offset estimate; and

means for reducing the ISI responsive to the restorative signal;

means for detecting symbols in the baseband signal to produce a decision signal; and

means for generating, from the decision signal, the restorative signal responsive to the frequency offset estimate, such that the restorative signal compensates for the ISI, wherein the means for generating the restorative signal includes:

means for frequency-shifting the decision signal away from baseband by an amount equal to the frequency offset estimate to produce a frequency-shifted decision signal;
and

means for filtering the frequency-shifted decision signal to produce the restorative signal.

Claim 32 (new): The receiver of claim 31, wherein the means for filtering the received signal and the means for filtering the frequency-shifted decision signal each use the same set of filter coefficients.

Claim 33 (new): The receiver of claim 31, wherein the means for filtering the received signal includes means for reducing the interference included in the received signal.

Claim 34 (new): A receiver for processing a received signal, the received signal including symbols and a frequency offset from baseband, the receiver generating a frequency offset estimate, the receiver comprising:

means for filtering the received signal to produce a filtered signal, whereby said filtering introduces inter-symbol interference (ISI) in the filtered signal;

means for converting the filtered signal to a baseband signal that is substantially free of the frequency offset and the ISI, responsive to the frequency offset estimate and a restorative signal that compensates for the ISI;

means for detecting symbols in the baseband signal to produce a decision signal; and

means for generating, from the decision signal, the restorative signal responsive to the frequency offset estimate, such that the restorative signal compensates for the ISI, wherein the means for generating the restorative signal includes:

means for frequency-shifting the decision signal away from baseband by an amount equal to the frequency offset estimate to produce a frequency-shifted decision signal;

means for filtering the frequency-shifted decision signal to produce a frequency-shifted restorative signal; and

means for frequency-shifting the frequency-shifted restorative signal toward baseband by an amount equal to the frequency offset estimate to produce the restorative signal.

Claim 35 (new): The receiver of claim 34, wherein the means for converting the filtered signal to a baseband signal includes:

means for frequency-shifting the filtered signal toward baseband by an amount equal to the frequency offset estimate to produce an intermediate signal substantially free of the frequency offset; and

means for combining the intermediate signal with the restorative signal to produce the baseband signal.

Claim 36 (new): The receiver of claim 34, wherein the means for filtering the received signal and the means for filtering the frequency-shifted decision signal each use the same set of filter coefficients.

Claim 37 (new): The receiver of claim 34, wherein the means for filtering the received signal includes means for reducing the interference included in the received signal.

Claim 38 (new): A receiver for processing a received signal, the received signal including symbols and a frequency offset from baseband, the receiver generating a frequency offset estimate, the receiver comprising:

means for filtering the received signal to produce a filtered signal, whereby said filtering introduces inter-symbol interference (ISI) in the filtered signal;

means for converting the filtered signal to a baseband signal that is substantially free of the frequency offset and the ISI, responsive to the frequency offset estimate and a restorative signal that compensates for the ISI;

means for detecting symbols in the baseband signal to produce a decision signal; and

means for generating, from the decision signal, the restorative signal responsive to the frequency offset estimate, such that the restorative signal compensates for the ISI, wherein the means for generating the restorative signal includes:

means for producing successive time-delayed portions of the decision signal;

means for phase-adjusting each of the time-delayed portions with a respective phase adjustment that is based on the frequency offset estimate, thereby producing phase-adjusted, time-delayed portions;

means for weighting the phase-adjusted, time-delayed portions with respective coefficients to produce weighted, phase-adjusted, time-delayed portions; and

means for combining the weighted, phase-adjusted, time-delayed portions to produce the restorative signal.

Claim 39 (new): The receiver of claim 38, wherein the means for filtering the received signal includes means for filtering based on the coefficients.

Claim 40 (new): The receiver of claim 38, wherein the means for phase-adjusting each of the time-delayed portions includes means for concurrently phase-adjusting the time-delayed portions with the respective phase adjustments.

Claim 41 (new): The receiver of claim 38, wherein the means for converting the filtered signal to a baseband signal includes:

means for frequency-shifting the filtered signal toward baseband by an amount equal to the frequency offset estimate to produce an intermediate signal substantially free of the frequency offset; and

means for combining the intermediate signal with the restorative signal to produce the baseband signal.

Claim 42 (new): The receiver of claim 38, wherein the means for filtering the received signal includes means for reducing the interference included in the received signal.

Claim 43 (new): A receiver for processing a received signal, the received signal including symbols and a frequency offset from baseband, the receiver generating a frequency offset estimate, the receiver comprising:

means for filtering the received signal to produce a filtered signal, whereby said filtering introduces inter-symbol interference (ISI) in the filtered signal;

means for converting the filtered signal to a baseband signal that is substantially free of the frequency offset and the ISI, responsive to the frequency offset estimate and a restorative signal that compensates for the ISI;

means for detecting symbols in the baseband signal to produce a decision signal; and

means for generating, from the decision signal, the restorative signal responsive to the frequency offset estimate, such that the restorative signal compensates for the ISI, wherein the means for generating the restorative signal includes:

means for producing successive time-delayed portions of the decision signal;

means for weighting the time-delayed portions with respective coefficients to produce weighted, time-delayed portions;

means for phase-adjusting each of the weighted, time-delayed portions with a respective phase adjustment that is based on the frequency offset estimate, thereby producing weighted, phase-adjusted, time-delayed portions; and

means for combining the weighted, phase-adjusted, time-delayed portions to produce the restorative signal.

Claim 44 (new): The receiver of claim 43, wherein the means for filtering the received signal includes means for filtering based on the coefficients.

Claim 45 (new): The method of claim 43, wherein the means for phase-adjusting each of the weighted, time-delayed portions includes means for concurrently phase-adjusting the weighted, time-delayed portions with the respective phase adjustments.

Claim 46 (new): The receiver of claim 43, wherein the means for converting the filtered signal to a baseband signal includes:

means for frequency-shifting the filtered signal toward baseband by an amount equal to the frequency offset estimate to produce an intermediate signal substantially free of the frequency offset; and

means for combining the intermediate signal with the restorative signal to produce the baseband signal.

Claim 47 (new): The receiver of claim 43, wherein the means for filtering the received signal includes means for reducing the interference included in the received signal.